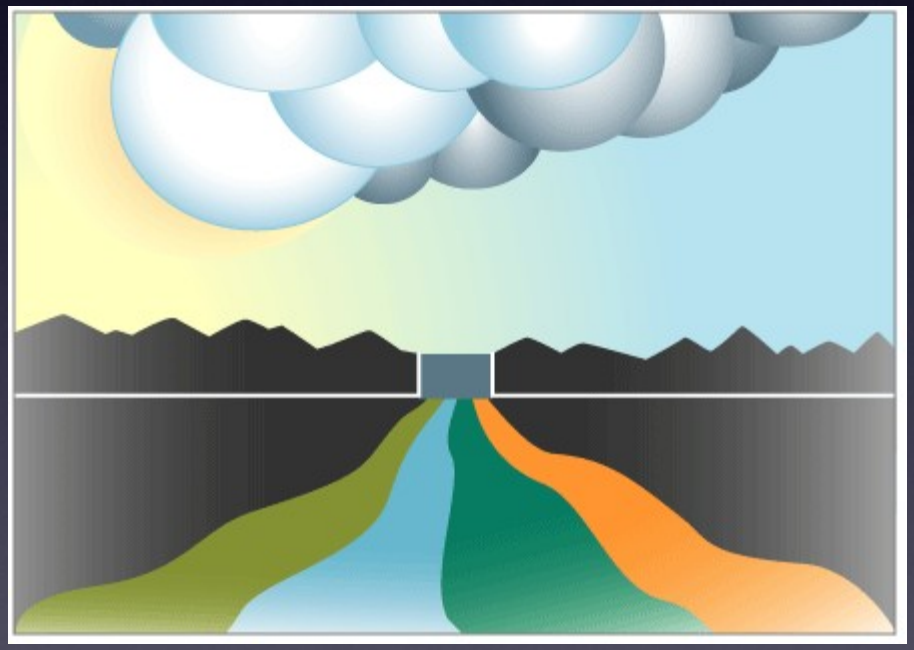
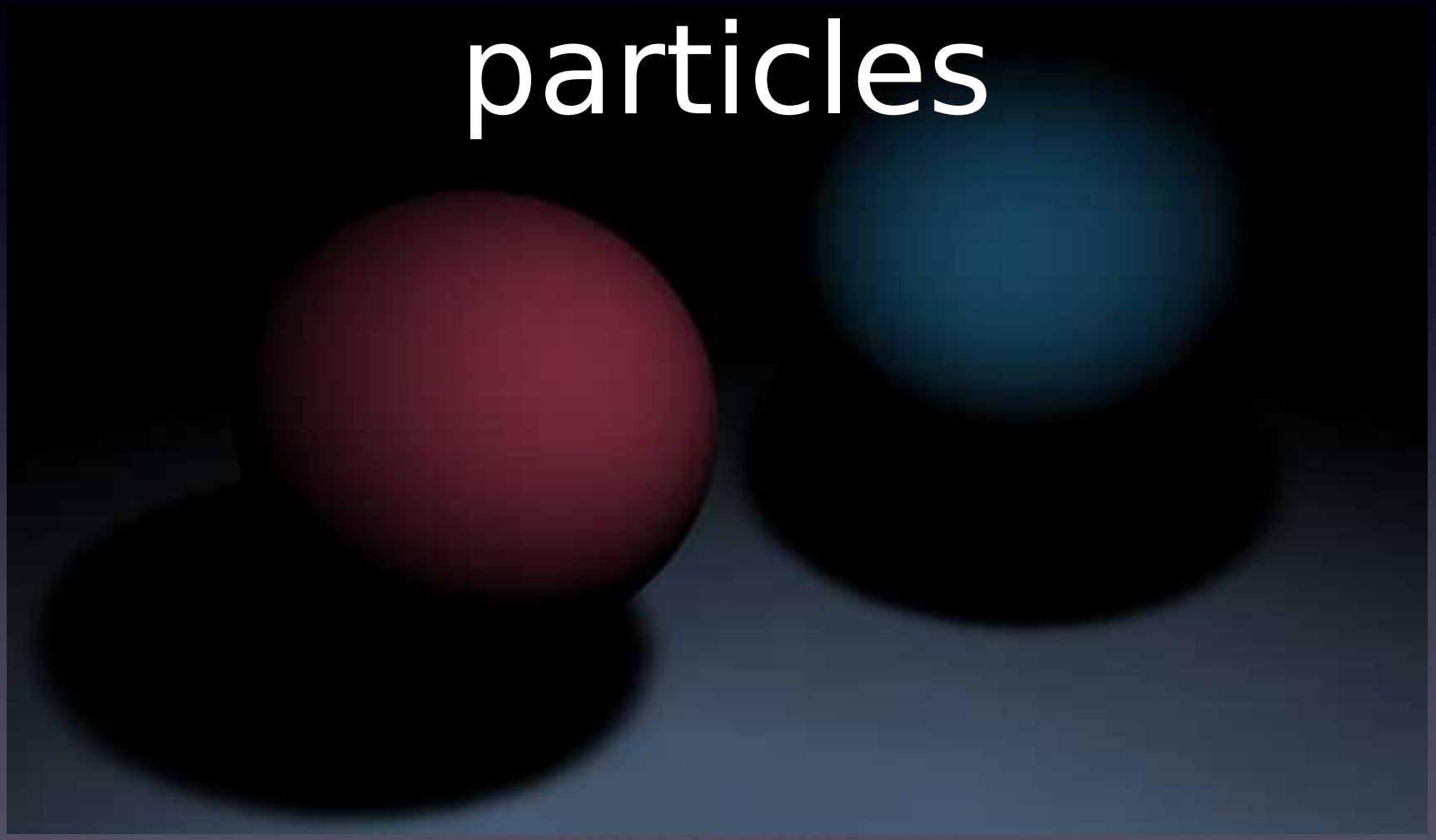
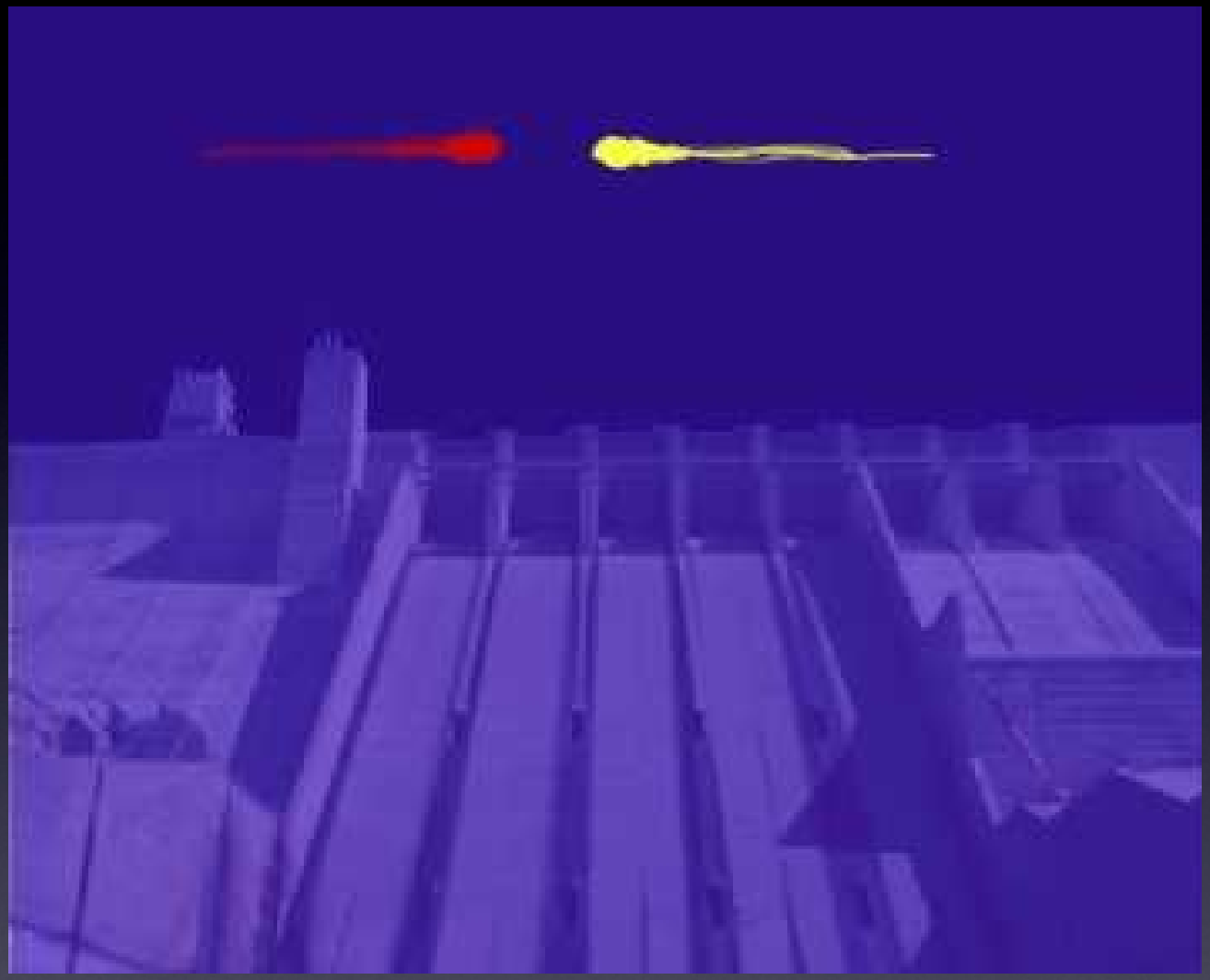
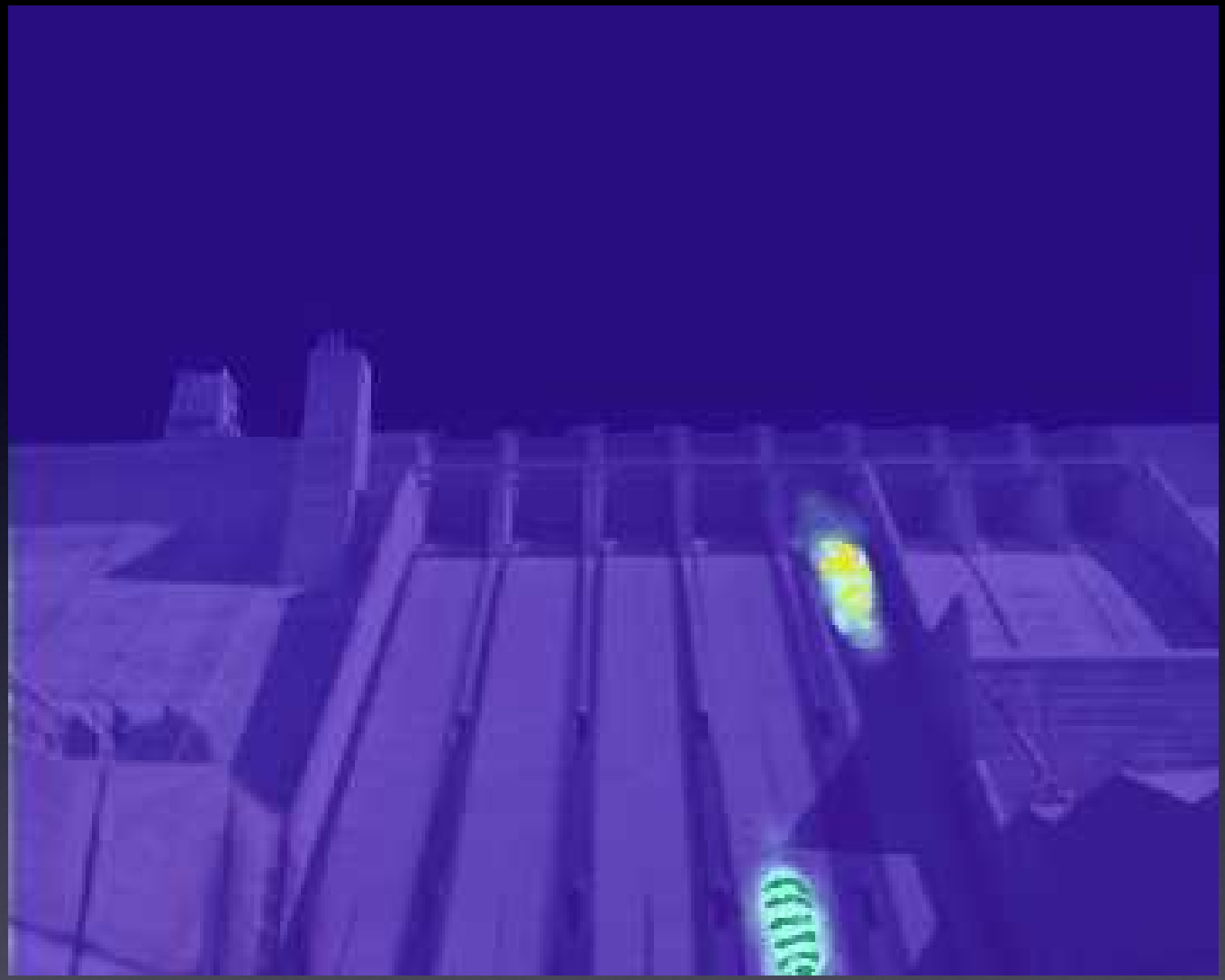
Quantum World of Corps / USBR Partnership

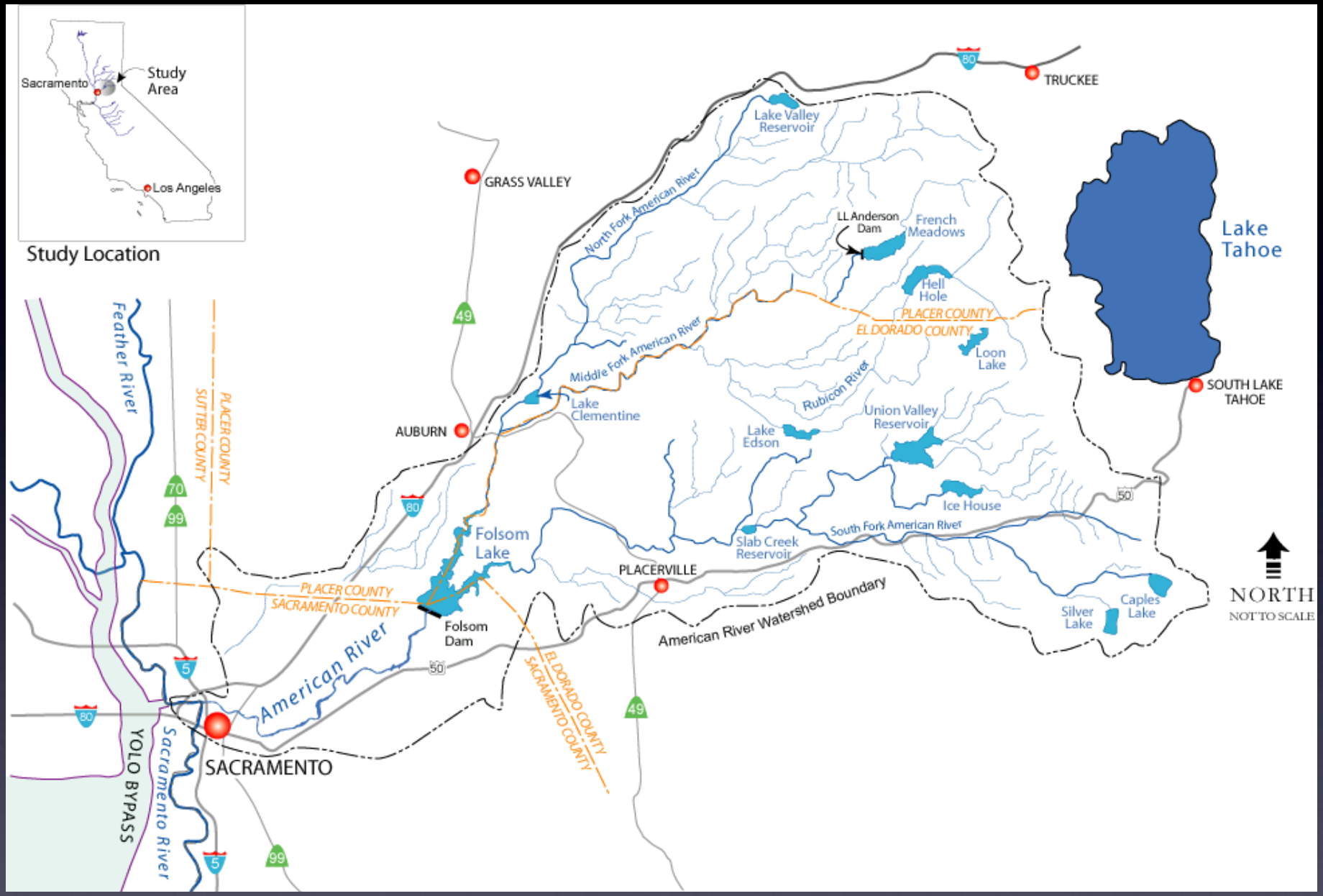


Corps & USBR like two particles



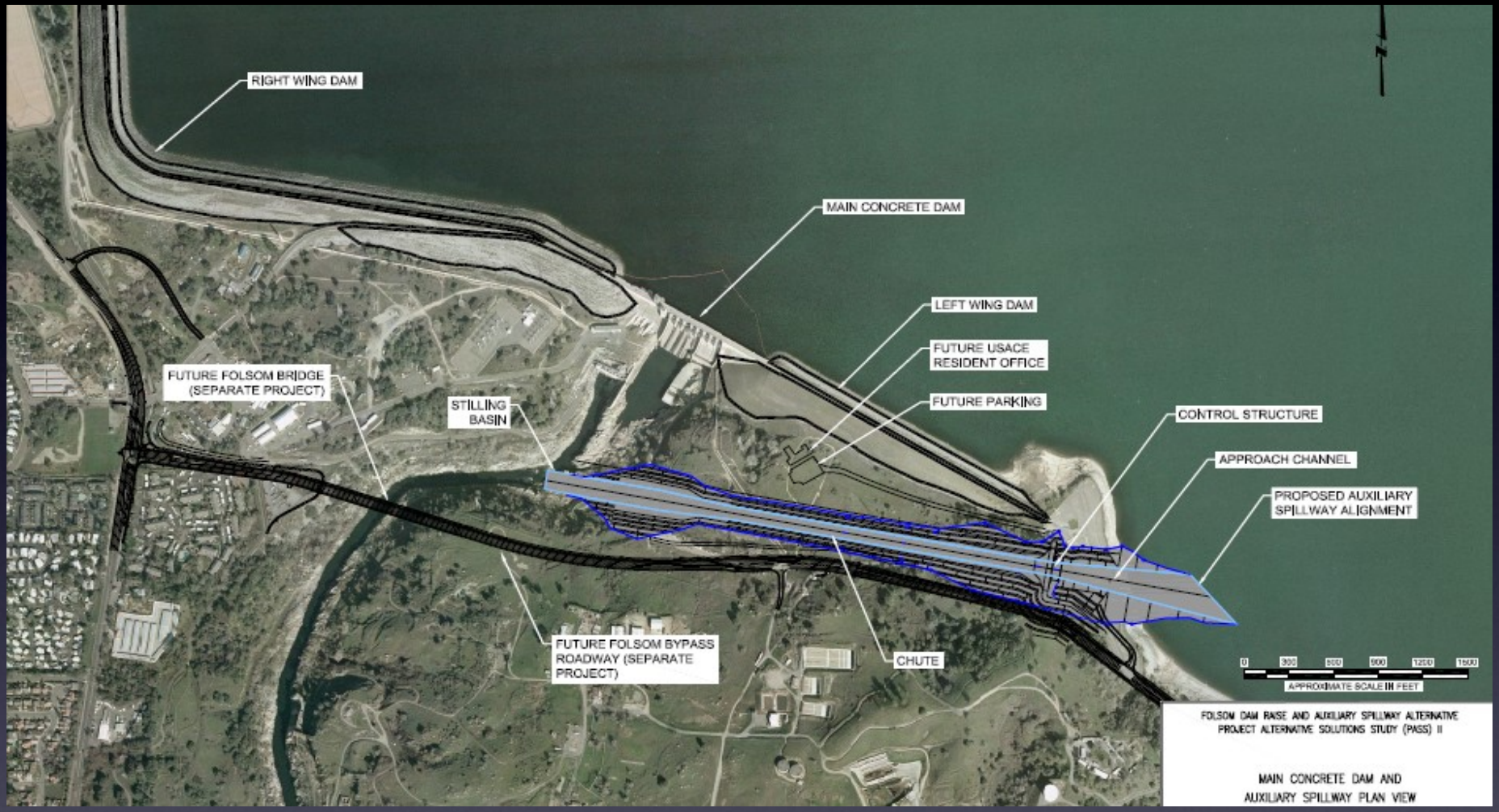





Sacramento
Study Area
Los Angeles
Study Location
TRUCKEE
Lake Valley Reservoir
GRASS VALLEY
North Fork American River
LL Anderson Dam
French Meadows
Lake Tahoe
Hell Hole
PLACER COUNTY
EL DORADO COUNTY
Loon Lake
Middle Fork American River
Lake Clementine
Rubicon River
Union Valley Reservoir
Lake Edson
AUBURN
SOUTH LAKE TAHOE
Ice House
South Fork American River
Folsom Lake
Slab Creek Reservoir
PLACERVILLE
Feather River
SUTTER COUNTY
PLACER COUNTY
SACRAMENTO COUNTY
Folsom Dam
American River
American River Watershed Boundary
Silver Lake
Caples Lake
NORTH
NOT TO SCALE
EL DORADO COUNTY
SACRAMENTO COUNTY
YOLO BYPASS
Sacramento River
SACRAMENTO

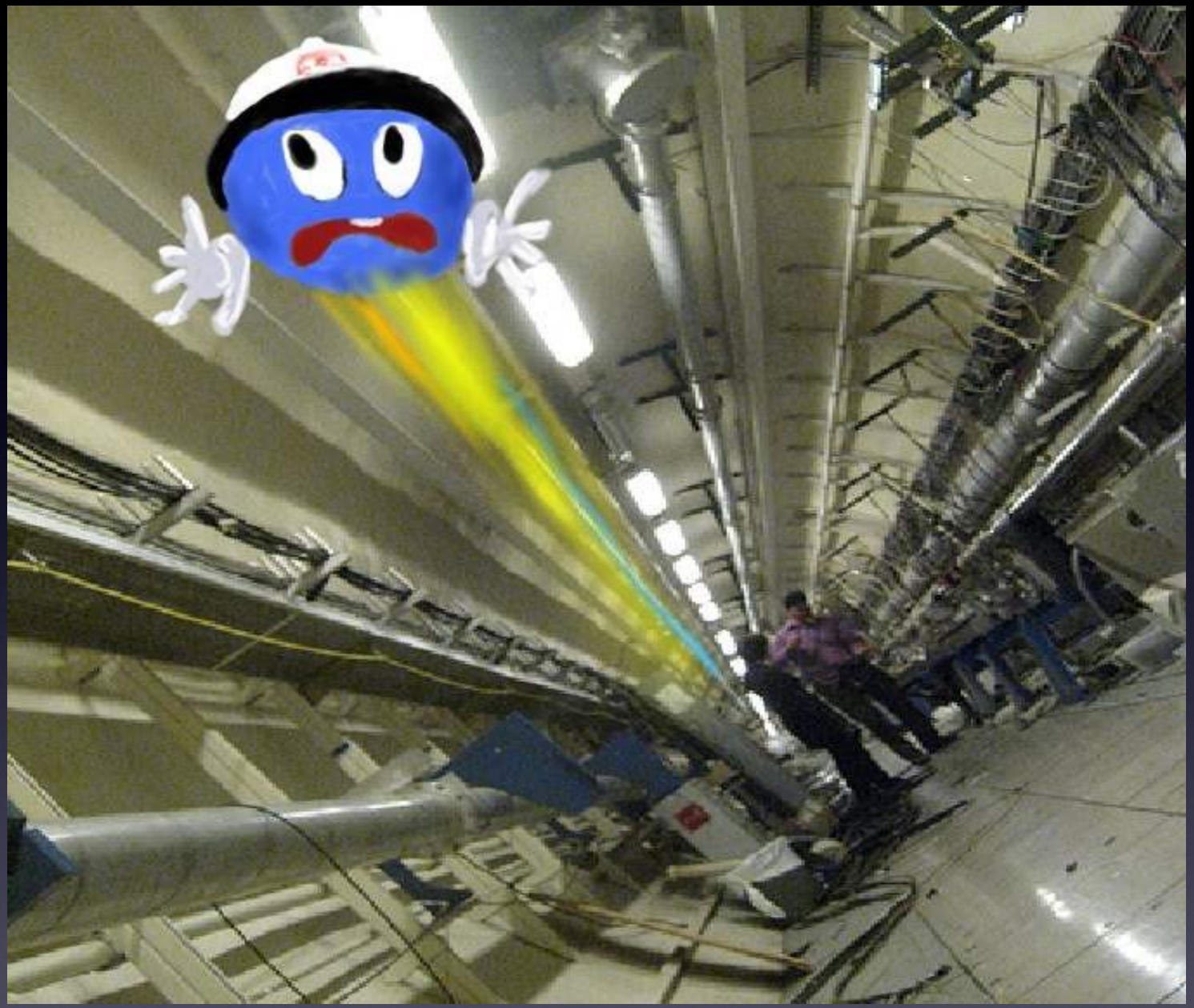
Corp's Interest in Folsom Dam

- Central Flood Protection Feature on the American River
- Early releases are limited to capacity of the low outlets (45,000 CFS)
- A gated auxiliary spillway would allow greater earlier releases.


RIGHT WING DAM
MAIN CONCRETE DAM
LEFT WING DAM
FUTURE USACE RESIDENT OFFICE
FUTURE PARKING
FUTURE FOLSOM BRIDGE (SEPARATE PROJECT)
STILLING BASIN
CONTROL STRUCTURE
APPROACH CHANNEL
PROPOSED AUXILIARY SPILLWAY ALIGNMENT
FUTURE FOLSOM BYPASS ROADWAY (SEPARATE PROJECT)
CHUTE
0 300 600 900 1200 1500
APPROXIMATE SCALE IN FEET
FOLSOM DAM RAISE AND AUXILIARY SPILLWAY ALTERNATIVE
PROJECT ALTERNATIVE SOLUTIONS STUDY (PASS) II
MAIN CONCRETE DAM AND
AUXILIARY SPILLWAY PLAN VIEW

Bureau's Interest in Folsom Dam

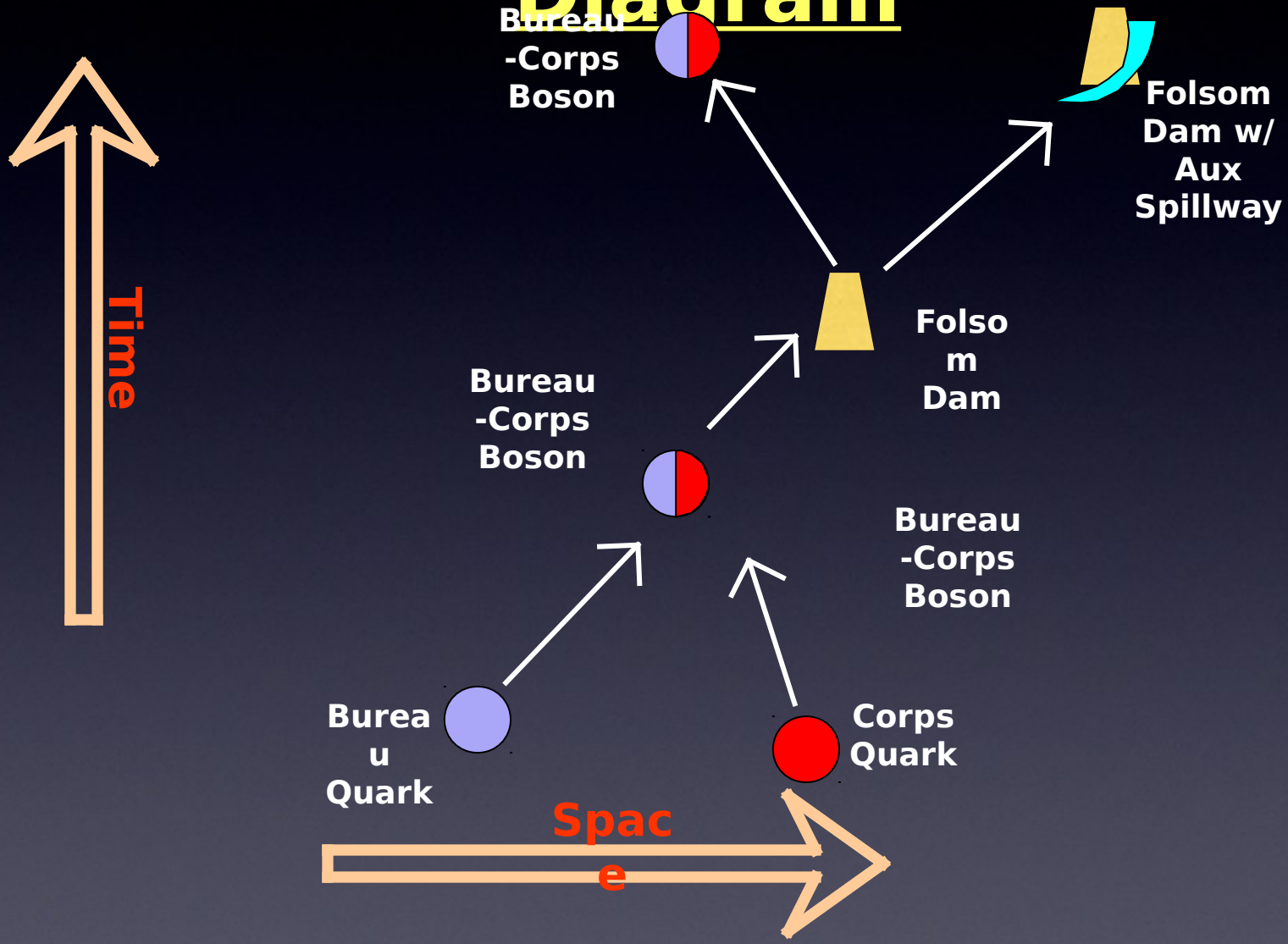
- Multipurpose Dam, part of the Central Valley Project
  - Irrigation
  - Municipal Industrial
  - Hydropower
- Unsafe, unable to pass the PMF
- Auxiliary spillway would make Folsom Dam safe
  - Fuse plug



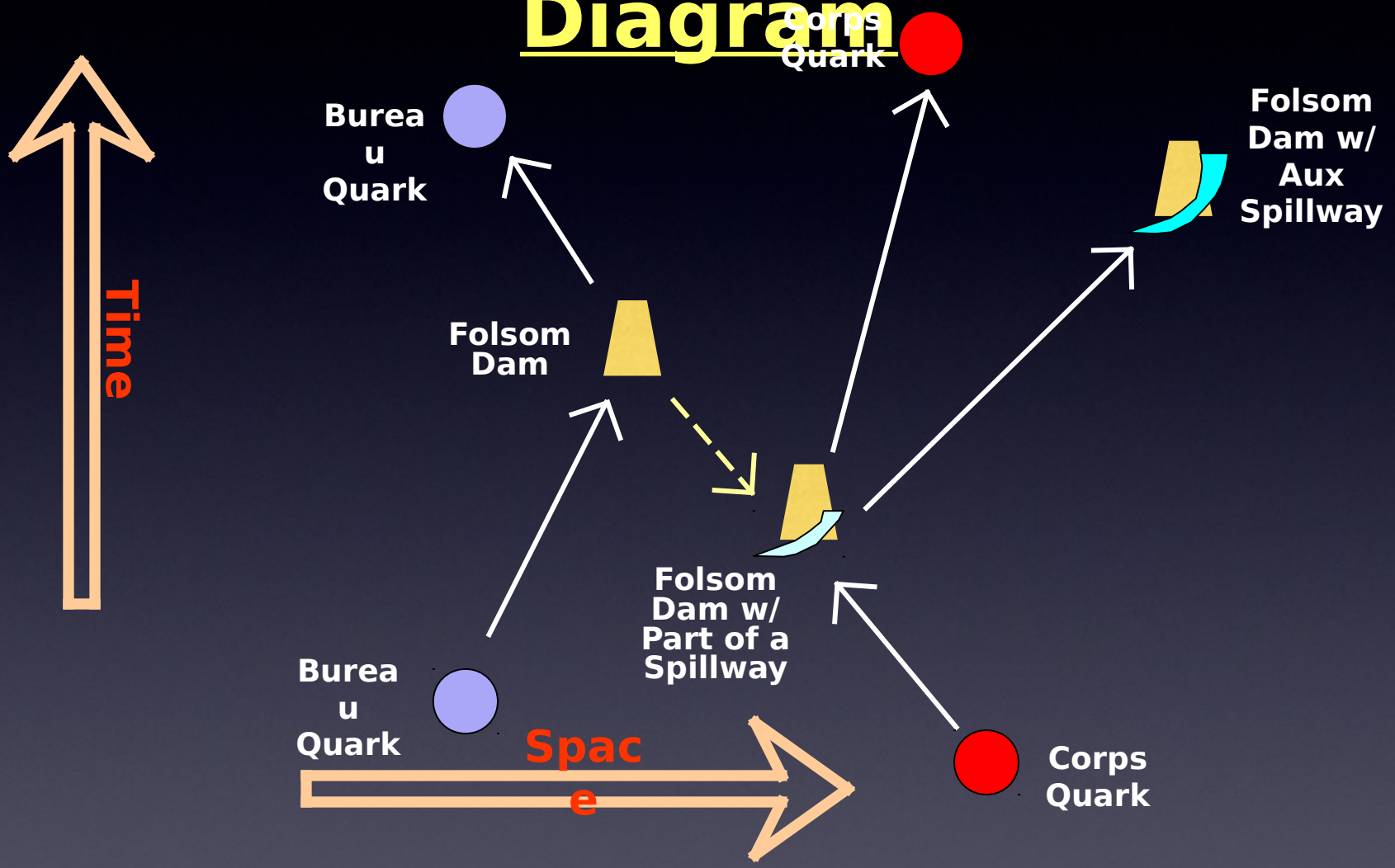
Why Wont Corps & BR Interact?

- Different Authorities
  - Corps: Flood Risk Management
  - Bureau: Dam Safety
- Different Sponsors
- Different Funding/ Justification
  - Corps: Project Authorization
  - Bureau Safety: Annual nationwide appropriation
- No Co-mingling of funds

Feynman Space – Time Diagram



Feynman Space – Time Diagram



How to Share Work?

1. Develop cost estimates Bureau & Corps Spillway
2. Distribute costs between Flood Damage Reduction & Dam Safety
3. Make up Work Packages
4. Agencies adopt their Work Packages

Develop Cost Estimates

- Make “neutral particle” cost estimates
  - Strip out :
    - Environmental
    - E&D S&A
    - Sunk Costs

Distribute Costs

$$\frac{\text{Single Purpose Dam Safety}}{\text{Single Purpose DS + FDR}} = \text{Dam Safety Percent}$$

$$\frac{\text{Single Purpose Flood Damage Reduction}}{\text{Single Purpose DS + FDR}} = \text{Flood Damage Reduction Percent}$$

20 Percent Dam Safety;

80 Percent Flood Damage Reduction

Target Costs

- Dam Safey: 20 % X $483 M = $98 M
- Flood Damage Reduction:

  80% X $483 M = $385 M

Work Packages

- Break down construction into discrete work items
  - Minimize risk, conserve efficiencies
- I.D. work Bureau would do for a fuse plug
- I.D. Corps work
- Add & subtract to get close to target costs

Bureau & Corps Adopt Work Packages

- Add back in respective items
- No single, total cost to the project

Questions
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